

Exhibit 22

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UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

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USA BASEBALL, THE NATIONAL HIGH
SCHOOL BASEBALL COACHES ASSOCIATION,
DR. PETER BERG, JUAN HERNANDEZ, DENNIS
CANALE, MEL ZITTER, MICHAEL CRUZ, TITO
NAVARRO, JOHN TORRES, EASTON SPORTS,
INC., WILSON SPORTING GOODS CO.,
RAWLINGS SPORTING GOODS COMPANY, and
HILLERICH & BRADSBY CO.

Plaintiffs,

- against -

Civil Action No. 07-CV-3605

CITY OF NEW YORK,

Defendant.

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DECLARATION OF RICHARD GREENWALD, Ph.D.

I, Richard Greenwald, depose and state as follows:

1. I am an Adjunct Associate Professor at the Thayer School of Engineering and Dartmouth College in Hanover, New Hampshire, and a specialist in bioengineering. I have focused in particular in my career on sports injuries. I have conducted extensive research on many sports-related safety issues, including safety and equipment performance issues relating to baseballs and softballs, baseball bats, skiing injuries, and football injuries. I am President of the International Society for Skiing Safety, and President and founder of Simbex, a research and development company that develops products in the areas of sports protective equipment, rehabilitation equipment and mobility. Simbex has developed products used to monitor and record accelerations of the head during impact in football, products related to wrist injuries in sports such as snowboarding and in-line skating, and procedures designed to train the elderly to reduce falling. I have published peer reviewed papers on batted ball performance using wood and metal bats, as well as on the dynamic properties of baseballs, among many other sports-related topics. I serve on a number of committees for the American Society of Testing Materials ("ASTM"), and am a chairman of the subcommittee of ASTM on baseball and softball equipment. My curriculum vitae is attached hereto as Exhibit A. If sworn as a witness, I could testify competently to the statements in this declaration.

2. I understand that the City of New York has enacted an ordinance which would prohibit all bats containing any metal and all non-wood composite bats. Based on my research and testing experience with baseball bats, and in reviewing and analyzing data related to sports injuries in general, I would oppose any statement that linked such a limitation on using non-wood bats to injury, simply because there are no publically available, peer reviewed scientific data to support this contention.

3. While there have been injuries, including a very few serious injuries, from batted balls off metal baseball bats, there is no scientific basis to support that these injuries were due to or caused by the use of a metal bat, or that these injuries would not also have occurred if the ball had been hit by a wood bat. I am aware of a number of sources of data on baseball injuries, including the University of North Carolina's catastrophic injury database, NCAA data and the National Emergency Injury Surveillance System database. There are no data that I have seen that would support the contention that there has been any increase in the incidence or severity of impact injuries from batted balls at any age level, or in any specific league as a result of the use of non-wood bats. There is no literature of which I am aware to support the contention that metal bats have caused an increase in batted ball injuries to pitchers. Baseball and softball appear to have remained at the very low end of the sports-related injury incidence lists.¹

4. Additionally, there is nothing inherent in any particular material used in baseball bats which would lead to a greater safety risk. I know from my own research that there are significant variations in batted ball velocity between different models of metal bats.

5. It is also true that balls hit off wood bats have exit speeds similar to hits off metal bats. In my testing of wood bats and metal bats (which predated current NCAA and high school regulations with respect to metal bats), my colleagues and I found that there were batted ball speeds off wood bats that were at levels that were consistent with the highest performing metal

¹ It is important to note that a significant number of batted ball (and thrown ball) injuries in youth baseball arise from a condition called commotio cordis. Commotio cordis involves sudden cardiac death from being struck in the chest, but can occur from a baseball traveling at a low velocity as well as a higher velocity. Recent research has indicated that the injury is more likely dependent on the relative timing of the ball impact on the player's chest and the player's heart rhythm than on the velocity of the ball impact.

bats we tested. There was also far more variation in batted ball speeds from hit to hit for any given bat than there was in average batted ball speeds when comparing different bats.² Most of the (pre-regulation) non-wood bats in that study were found to have higher average batted ball speeds than wood bats.

6. Governing bodies in baseball (eg. league, association, town) typically regulate the game of baseball via rules that may include bat and ball performance requirements. I understand that, in the past, such restrictions on bat and ball performance were typically aimed at adjusting levels of offense, home runs, game time. These issues can be addressed by regulation of the characteristics of the bat, rather than by a prohibition of all bats utilizing particular materials. Such regulation is currently engaged in by various governing bodies, including the NCAA and National Federation of High Schools (NFHS), Little League, and a variety of softball leagues. I understand that the NCAA and NFHS now test bat performance using standards approved by ASTM, an international organization which establishes standardized test methods for use in the United States and sometimes worldwide for testing devices, equipment and materials. The ASTM standard is a laboratory method for quantifying the performance of baseball bats.

7. I also understand that there have been attempts to regulate bat and ball performance for the stated purpose of decreasing the risk of injury due to a batted ball. Given that there is no scientific evidence that the risk of injury from a batted ball is increased with the

² While it is true that some of the metal bats used in my published research papers from our "Frozen Ropes" field study did outperform wood bats, none of those bats would qualify under today's NCAA baseball bat performance test (commonly known as the BESR, or Ball Exit Speed Ratio, test. One bat we tested which had characteristics more similar to today's regulated metal bats did not generate exit speeds which were statistically different from the tested wood bats.

use of non-wood bats, it is not clear that regulating performance levels to current wood bat performance levels would have any appreciable effect on injury risk. Again, if a governing body decided that the current level of injury risk from a batted ball associated with today's bats were too high for their game, they could choose to regulate bat performance rather than bat material.

8. It is also important to note that eyewitness observations don't provide a scientific or reliable comparison between wood and aluminum batted ball velocities. In my experience, an observer cannot reliably differentiate between batted ball speeds except for very large differences, on the order of 20 miles per hour, which is far larger than the average differences we observed between even pre-regulation metal bats and wood bats. If observers contend that metal bats hit the ball faster than wood bats, they are likely simply observing the fact that there are more "good" hits off metal bats than off wood bats. In our field study of metal and wood bats, "good" hits resulted in higher exit speeds that were achieved by both metal bats and wood bats.

9. When the New York bat ordinance was being considered by the New York City council last fall, I received an e-mail from one of Councilman Oddo's staff persons, seeking support for Councilman Oddo's proposed bill. I strongly oppose the bill, and indicated that in my responsive e-mail. That e-mail exchange is attached here to as Exhibit B.

I declare under penalty of perjury that the foregoing is true and correct.

This 29th day of May, 2007.



RICHARD GREENWALD, Ph.D.

Exhibit A

CURRICULUM VITAE**RICHARD MARK GREENWALD****President****Simbex****10 Water Street, Suite 410****Lebanon, New Hampshire 03766****603-448-2367****PERSONAL DATA**

Home Address: 63 Douglas Hill
Norwich, Vermont 05055

Birthdate: November 5, 1964

Birthplace: Queens, New York

Marital Status: Married, 2 children

EDUCATION

University of Utah Salt Lake City, UT	Ph.D	1997	Bioengineering
Thayer School of Engineering Dartmouth College, Hanover, NH	M.S.E	1988	Biomedical Engineering
Duke University Durham, NC	B.S.E	1986	Biomedical Engineering

PROFESSIONAL MEMBERSHIP

President – International Society for Skiing Safety, 2005-
Member, National Advisory Board on Medical Rehabilitation Research (NABMRR), NIH/NICHD, July 2006 -
Chairman, Certification Committee, Hockey Equipment Certification Council, 2006-
Journal Reviewer, Journal of Biomechanics, 2006-
Member, ISO Technical Committee 83/SC5 Ice Hockey, 2005-
Reviewer, Veterans Administration, Rehabilitation Research Panel, 2004-
Reviewer, National Institutes of Health, Rehabilitation SSS-5(10), BRP-ZRG1 SSS-M(53), and RMP-ZRG1 SSS-M(01) Study Sections, 2001-2006
Chairman, ASTM F-08.26 – Baseball and Softball Committee, 2000-
Member - International Society of Biomechanics, 1999-
Member – ISO Technical Committee 83/SC3/WG7 Ski Equipment – 1999-2004
Journal Reviewer – Journal of Biomechanical Engineering, 1998-
Member - ASTM F-8 Committee on Sports Equipment, 1998-
Board Member - International Society for Skiing Safety, 1997-
Grant Reviewer- National Operating Committee for Standards in Athletic Equipment, 1997-
Journal reviewer - Journal of Applied Biomechanics, 1997-

Member - American Society of Biomechanics, 1996-
 Journal reviewer - Journal of Orthopedic Research, 1996-1999
 Member - ASTM F-27 Committee on Skiing Safety, 1993-
 Member - International Society for Skiing Safety, 1993-
 Journal reviewer - American Society for Testing Materials, 1993-

PROFESSIONAL EXPERIENCE

6/00 - **President, Founder**, Simbex LLC, Lebanon, New Hampshire.
 Product Development for the Medical Rehabilitation and Sports Protective Equipment markets.

7/04 – **Adjunct Associate Professor of Engineering**, Thayer School of Engineering, Dartmouth College, Hanover, NH.

9/01 – 7/04 **Adjunct Assistant Professor of Engineering**, Thayer School of Engineering, Dartmouth College, Hanover, NH.

6/98 – 1/01 **Adjunct Assistant Professor of Orthopedics**, Brown University School of Medicine, Providence, RI

12/97 – 1/05 **Executive Director, Founder**, National Institute for Sports Science and Safety, Providence, RI
 Director of research for non-profit research foundation whose goal is to reduce the incidence of injury in sports via basic science research into injury mechanisms and the relationship of personal protective equipment to injury in sports, particularly in women and youth.

12/97 – 5/00 **US Director Orthopedics/Sports/Rehabilitation**, TUV Product Service, Providence, RI
 Responsible for product testing services of multinational firm in the specific areas of orthopedic products and sports equipment to national and international standards. Responsibilities include technical and administrative aspects of contract generation, testing, and report writing

7/97- 6/98 **Research Instructor**, Department of Bioengineering, University of Utah, Salt Lake City, UT

3/97 - 6/98 **Adjunct Assistant Professor**, Department of Exercise and Sports Science, University of Utah, Salt Lake City, UT

3/94 - 12/97 **Director**, Orthopedic Biomechanics Institute, Salt Lake City, UT
 Responsible for basic and clinical research for 10-12 employee/student non-profit orthopedic research lab. Duties include research and testing, grant writing, personnel, budgeting, contracts, and accounting. Support for 4 graduate students. Projects in sports injury biomechanics, rehabilitation device efficacy, materials, and mechanical testing.

1/93- 5/00 **Consultant/Owner**, MD SporTech, Park City, UT/Providence, RI
 Independent consulting for biomechanics and sports related industries.

6/92 -6/94 **Systems Engineer**, Innovative Research and Development, Salt Lake City, UT
 System level hardware and software development. High speed, low power portable data acquisition systems. Transducer design and prototyping.

- 8/91 -3/94 **Systems Engineer**, Orthopedic Biomechanics Institute, Salt Lake City, UT
Sports Biomechanics Research- Investigation of mechanisms of knee injuries in dynamic situations, knee brace biomechanics, rehabilitation device efficacy, impact biomechanics in baseball. Wrote 3-D gait analysis software, built portable data acquisition systems.
- 11/88 -8/91 **Consultant/Software Engineer**, Microprocessor Designs, Shelburne, VT
Provided systems level hardware and software services for PC-based real-time data acquisition systems including user interface and graphic icon screen output for turnkey products used by medically oriented companies.
- 3/88 - 8/88 **Research Engineer**, Vermont Ski Safety Equipment, Inc., Underhill, VT
Design and construction of a new ASTM standard device capable of multiaxis loading for testing alpine skis, alpine boots, and snowboards. Responsible for collection and analysis of mechanical and medical data from the Sugarbush Ski Research Project.
- 8/86 - 1/88 **Research Engineer**, Thayer School of Engineering, Dartmouth College, Hanover, NH
Development of techniques to improve the success rate of surgery that replaces the anterior cruciate ligament in the knee. Biomechanical analysis of materials used in prosthetic ligaments.
- 5/85 - 6/86 **Biomedical Instrumentation Engineer**, Department of Bioengineering, Duke University
Fabrication and testing of digital and analog circuitry employed in a two dimensional flow imaging ultrasound system.
- 1/85 - 6/86 **Research Intern**, Department of Surgery, Duke University Medical Center, Durham, NC
Independent research in sports medicine clinic. Improved computer control of the isokinetic, isometric, and isotonic control loops on the Gideon Areil exercise machine. Design and construction of a five-finger continuous passive motion device for post-operative rehabilitation of Zone II flexor tendon injuries of the hand.

PATENTS

Rosenberg TD, Greenwald RM: *Instrument and Method For Surgical Stimulation of Connective Tissue*, US Patent 5,961,535, October 5, 1999.

Johnson SC, Greenwald RM, Rosenberg TD: *Vibrational Stimulator*, US Patent 6,620,117, September 16, 2003.

Crisco JJ, Greenwald RM: *System and Method for Measuring the Linear and Rotational Acceleration of a Body Part*, US Patent 6,826,509, November 30, 2004.

Greenwald RM, Chu JJ: *Power Management of a System for Measuring the Acceleration of a Body Part*, filed January 2005.

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Greenwald RM, Chu JJ, Crisco JJ, Ide, T: *System for Measuring and Monitoring Acceleration of a Body Part*, filed January, 2005.

Greenwald RM, Chu JJ, Bertoni DS: *System and Method for Evaluating and Providing Treatment to Sports Participants*, filed January, 2005.

Grabiner MD, Greenwald RM, Palifka RM, Buck AT, Chu JJ: *Fall Prevention Training System Using a Dynamic Perturbation Platform*, filed June 2005.

Fago JR, Fago J, Greenwald RM, Mayor MB: *Modular Prosthetic Implant Technology for Upper and Lower Extremity Amputees*, filed January 2006.

Greenwald RM, Chu JJ, Jessiman AW, Buck AT, Bertoni DW: *Dynamic Body Protector*, filed July 2006

GRANTS AND AWARDS

Greenwald RM: *A Powered Foot and Ankle Prosthesis for Improved Maneuverability and Reduced Metabolic Cost*. Department of Defense, U.S. Army Medical Research Acquisition Activity, W81XHW-06-C-0392, Phase I, August 2006 – February 2007.

Greenwald RM: *Ultra-Low Power head Impact Monitor for Field Applications in Combat Environments*. Department of Defense, U.S. Air Force Research Laboratories, FA8650-06-M-6718, Phase I SBIR, April 2006 – January 2007.

Greenwald RM: *Activestop Dynamic Wrist Protector for Sports*. National Institutes of Health, 1 R43 AR049959-01, Phase II SBIR, August 2004 – June 2006.

Greenwald RM: *ActiveStep Fall Prevention Training System*. National Institutes of Health, 1 R44 AG023407-01, FastTrack Phase I SBIR, February 2004 – December 2004, Phase II SBIR, January 2005 – December 2006.

Greenwald RM: *Suction Retention Smart Variable Geometry Sockets for Transtibial Prostheses*. National Science Foundation, DMI-0091513, Phase IIB SBIR, July 2003-May 2005.

Greenwald RM: *Activestop Dynamic Wrist Protector for Sports*. National Institutes of Health, 1 R43 AR049959-01, Phase I SBIR, June 2003 – November 2003.

Greenwald RM: *Head Impact Recording Technology for Field Applications*. National Institutes of Health, 2 R44 HD 40743-02, Phase II SBIR, April 2002 – March 2004.

Greenwald RM: *Head Impact Recording Technology for Field Applications*. National Institutes of Health, 1 R43 HD40743-01, Phase I SBIR, March 2001 – September 2001.

Greenwald RM: *Suction Retention Smart Variable Geometry Sockets for Transtibial Prostheses*. National Science Foundation, DMI-0091513, Phase II SBIR, January 2001 – May 2003.

Greenwald RM: *Restoring Functional Mobility in the Elderly through In-Bed Exercise*. National Science Foundation, DMI-0078585, Phase II SBIR, October 2000 – November 2002, transferred from Synergy Innovations, Inc. January 2001.

Greenwald RM: *Smart Variable Geometry Socket for Lower-Limb Prosthesis*. National Institutes of Health, 5 R44 HD 36154-04, Phase II SBIR, September 2000 – September 2002, transferred from Synergy Innovations, Inc. January 2001.

Crisco JJ, Greenwald RM: *A Research Program for Determining Baseball Bat and Ball Performance*. Sporting Goods Manufacturers Association, July 1998 – June 2000.

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France EP, Erickson AR, Joganich TG, Bagley AM, Greenwald RM, "A Clinical and Biomechanical Evaluation of the Lenox Hill Patellofemoral Knee Brace, Results of Preliminary Investigations", published by the Lenox Hill Brace Co., Long Island City, NY, 1992.

Greenwald RM, France EP, Rosenberg TD, Toelcke T: *Significant Gender Differences in Alpine Skiing Injuries: A Five Year Study*, Skiing Trauma and Safety: Tenth International Symposium, ASTM STP, 1266, RJ Johnson, CD Mote (ed), ASTM, Philadelphia, PA, 1995

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Self BP, Greenwald RM, Pflaster DS: *A Biomechanical Analysis of a Medial Unloading Brace for Osteoarthritis in the Knee*. Arthritis Care Res. 13(4): 191-197, 2000.

Torres K, Greenwald RM, Crisco JJ: *Development and Validation of an Apparatus for Determining Snowboard Boot Stiffness*, Skiing Trauma and Safety: Thirteenth International Symposium, ASTM STP 1397, RJ Johnson (ed), ASTM, Philadelphia, PA, 2000.

Greenwald RM, Nesshoever M, Boynton MD: *Ski Injury Epidemiology: A Short Term Epidemiology Study of Injuries with Skiboards*, Skiing Trauma and Safety: Thirteenth International Symposium, ASTM STP 1397, RJ Johnson (ed), ASTM, Philadelphia, PA, September, 2000.

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Greenwald RM, Boynton MD, Nesshoever M: *Ski Injury Epidemiology: A Two Year Study of Injuries with Skiboards*, Knee Surgery, Sports Traumatology and Arthroscopy, September 2001.

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Greenwald RM: *Equipment Design Proposals for Injury Reduction in Snowboarding*, The Utah Symposium for Skier Safety, Snowbird, UT, April 2-4, 1993.

Greenwald RM, Toelcke T: *Significant Gender Differences in Alpine Skiing Injuries: A Profile of the Knee Injured Skier*, Skiing Trauma and Safety: Eleventh International Symposium, Voss, Norway, 1995.

Greenwald RM, Hendee S, Self BP: *Variations in Binding Release Torque under Modified ASTM Testing Conditions using a Static Preload Torque*, Skiing Trauma and Safety: Eleventh International Symposium, Voss, Norway, 1995.

Self BP, Greenwald RM, Wang, Y: *Characterization of a Test System to Investigate Ankle Injuries During Impact Landings*, ASME Summer Meeting, Beaver Creek, CO, 1995.

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Greenwald RM, Janes PC, West J: *A Biomechanical Analysis of Wrist Guards for Snowboarding*, Skiing Trauma and Safety: Twelfth International Symposium, Whistler, British Columbia, May, 1997.

Greenwald RM, Nesshoever M, Boynton MD, Crisco JJ: *Ski Injury Epidemiology: A Short Term Case Control Study of Injuries With Short Skis*, Skiing Trauma and Safety: Thirteenth International Symposium, Cervenia, Italy, May, 1999.

Greenwald RM, Crisco JJ, Torres K: *A Method For Measuring The Mechanical Properties Of Snowboard Boot And Binding Systems In Bending*, Skiing Trauma and Safety: Thirteenth International Symposium, Cervenia, Italy, May, 1999.

Greenwald RM, Swanson SC, McDonald TR: *Lower Extremity Three-dimensional Joint motion, Muscle Activity, and Binding Forces during Recreational Skiing*, Skiing Trauma and Safety: Thirteenth International Symposium, Cervenia, Italy, May, 1999.

Greenwald RM, Crisco JJ, Torres K: *A Method For Measuring The Mechanical Properties Of Snowboard Boot And Binding Systems In Bending*, ASME Summer Meeting, Big Sky, Montana, June, 1999.

Greenwald RM, Swanson, SC, McDonald TR: *Towards The Creation of a New Release Envelope for Protecting the Knee in Alpine Skiing*, XVIIth Congress of the International Society for Biomechanics, Calgary, Canada, August, 1999.

Greenwald RM, Crisco JJ: *Comparison of NISSS Field Data with Lansmont BEST Laboratory Data*, Sporting Goods Manufacturers Association Baseball/Softball Council Meeting, Chicago, October 2000.

Greenwald RM, Dean RC, Braley CS, Couture P: *Smart Variable Geometry Socket (SVGS) for Lower Limb Amputees*, New England Chapter of the AAOP, Portsmouth, New Hampshire, May 11, 2001.

Greenwald RM, Crisco JJ: *Comparison of Sweet Spot and Bat Swing Speed for Metal and Wood Baseball Bats*, Sporting Goods Manufacturers Association Baseball/Softball Council Meeting, Chicago, October 2001.

Greenwald RM, Chu UU: *Use of Materials in Designing and Testing of Safety Equipment in Sports*. Thayer School of Engineering, Dartmouth College, Hanover, NH, April 2002.

Greenwald RM: *Competitive Proposal Workshop – Small Business Innovative Research Proposal: NIH Case Study: “Smart Variable Geometry Socket,”* Thayer School of Engineering, Dartmouth College, February 2003.

Greenwald RM, Chu JJ: *Use of Materials in Designing and Testing of Safety Equipment in Sports*. Thayer School of Engineering, Dartmouth College, Hanover, NH, April 2003.

Greenwald RM, Chu JJ, Crisco JJ: *Validation of a Novel Algorithm for Estimating Head Impact Magnitude and Location*, Skiing Trauma and Safety: Fifteenth International Symposium, St. Moritz, Switzerland, May 2003.

Greenwald RM: *New Directions in Prosthetics*, Invited Presentation, Conference on Physical Disabilities Through the Lifespan, National Institutes of Health, Bethesda, Maryland, July 2003.

Greenwald RM: *Competitive Proposal Workshop – Small Business Innovative Research Proposa: NIH Case Study: “Head Impact Recording Technology for Field Applications,”* Thayer School of Engineering, Dartmouth College, February 2004.

Greenwald RM: *Head Impact Telemetry System – Field Results from Virginia Tech 2003*, National Athletic Trainers Association Annual Meeting, Baltimore, MD, June 2004.

Greenwald RM: *Ski-Injury Epidemiology – 1999-2004 Skiboard Injuries*, 16th International Symposium on Ski Trauma and Skiing Safety Conference, Niigata, Japan, April 2005.

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ABSTRACTS

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Exhibit B

Dewey,

I appreciate the information you forwarded to me regarding the proposed rule in NYC for not allowing non-wood bats for competitive baseball. I am sorry that I will not be able to attend the New York City Council Youth Services Committee meeting regarding Proposed Int. No. 341-A next Monday, but I hope you can forward this email to Councilman Oddo and Steven Matteo on my behalf.

Below you will find the information I sent Mr. Matteo via email in late October. Based on the wording of the proposal that has been put forth, it does not appear that this information either got to the Council or they did not accept it. Particularly disturbing is the fact that the Council has concluded that the use of non-wood bats poses an unacceptable risk to children, particularly high school competitive players. I remain unaware of any scientific data to support this notion, and although I respect their right to determine a level of acceptable risk, I think it should be supported by the data rather than by opinion.

If you refer to Mr. Matteo's email of October 17th below, it appears that Mr. Matteo clearly did not understand the data that was presented in the Frozen Ropes study that Trey Crisco and I performed and published back in the later 1990's, and that he hoped to use the data to link the concept of bat performance with safety. While it is true that some of the metal bats used in the Frozen Ropes study did outperform wood bats, I do not believe that any of those bats would qualify under today's NCAA BESR test. Importantly, it should be noted that there were hits with wooden bats that were within the highest batted ball speeds as well. I don't argue that those metal bats outperformed wood bats, but the relationship between field performance of today's wood bats and non-wood bats using laboratory tests with batted ball speed or BESR as a metric is not clear – no one has done the study.

The bats used in the Frozen Ropes study pre-date the establishment of the BESR standard and may not meet today's performance limits for a given governing body such as the NYC Council. Therefore the bats used in this study do not tell you how today's bats perform relative to wood – recall that several of the bats tested were of larger diameter and higher weight/length differential (-5) than are typically allowed today. The -3 bat tested actually performed quite similarly to wood bats.

One important aspect of that study was to demonstrate that laboratory data collected using ASTM standard test methods would effectively rank order the performance of bats compared to actual performance in the field. We were careful to state that the results from the study could not be extrapolated to all non-wood bats, or that all non-wood bats would outperform wood bats. And we were specific that these results did not imply or relate to any safety issue that we were aware of in baseball – there were and, to my knowledge, are no published data that support that notion.

I understand that the Council is relying on computer modeling work performed by Dr. Rochelle Nicholl. I would caution that the results of this theoretical model should be validated with appropriate field data – and I am not aware that this has been done. If the model values significantly overpredict batted ball speeds noted compared to actual measurements taken from a player (and in this case with a bat model (BE811 bat, 2.75" diameter and -4 which is not compliant with today's BESR rules), then one has to question the overall predictive capability of that model. I am not attempting to review or critique this specific report – only to caution on the use of theoretical data.

I do not know the motivation behind the Council's proposed rule change. As Chairman of the ASTM subcommittee F08.26 on baseball and softball equipment, I can state that today's test methods were developed to allow for quantifying the performance of baseball bats, and that the Frozen Ropes study demonstrated that laboratory tests were able to reasonably characterize bat performance in the field. There has been no data presented to the subcommittee that would suggest that there is a safety limit that can be represented by a BESR or batted ball speed test.

I personally do not understand the Council's position that non-wood bats pose an unacceptable risk to children, but I caveat that because I do not know what information they have reviewed. I have no data to support an increased risk of number of impacts or of any specific increase in injury mechanism or injury severity that is linked causally to non-wood bats. I allow my children to participate in Little League baseball with non-wood bats. What is the unacceptable risk that this new rule is addressing?

I hope that the Council can make an informed decision based on scientific evidence – I hope that the information in this email helps to ensure that facts regarding the Frozen Ropes study are not misinterpreted by the Council.

I look forward to hearing the outcome of the Council's meeting – thank you in advance for sharing this with the Council.

Regards
Rick Greenwald, PhD

From: Rick Greenwald [mailto:rgreenwald@simbex.com]
Sent: Friday, October 27, 2006 1:50 PM
To: 'St22man@aol.com'
Subject: RE: (no subject)

Steven,

My apologies for not being able to attend or provide info for this meeting. I am curious about the outcome, however. I think the information I would have provided may not have been exactly what you might have hoped for. Here's the short version:

- 1) Our published research did show that some, but not all, aluminum bats tested did outperform wood bats in terms of batted ball speed.
- 2) However, I think in your email below, you mix the notion of increased batted ball speed (a metric of performance) with safety. This is a significant concern for me. I am not aware of any published peer-reviewed scientific data that supports the notion that there has been an increase in injuries related to being struck by a batted ball in baseball or softball at any level of play due to increased batted ball speed or bat performance. Baseball and softball appear to have remained at the very low end of the injury incidence lists.
- 3) I have stated publicly that the notion of limiting the use of bats to wood only is reasonable if a governing body wants to control some aspects of the game such as run production or game time based on the fact that non-wood bats often outperform wood bats. However, I would oppose any statement that linked such a limitation on using non-wood bats to injury, simply because there are no scientific data to support this contention. This is an important and overlooked point - I urge Councilman Oddo to consider this as you move forward.

I would welcome quality scientific research that quantified these issues, and if there were such a peer-reviewed scientific study, I would be interested in presenting it to the industry as part of my role as Chairman of the ASTM Subcommittee F08.26 on Baseball and Softball.

Are there Council meeting minutes available for this topic? I'd be happy to work with you and Councilman Oddo in the future - if it meets your needs.

Please contact me if you have any questions.

Regards
Rick Greenwald,Phd

From: St22man@aol.com [mailto:St22man@aol.com]
Sent: Tuesday, October 17, 2006 4:43 PM
To: rgreenwald@simbex.com
Subject: (no subject)

Mr. Greenwald:

My name is Steven Matteo and I am the Chief of Staff for NYC Council Member James S. Oddo. I am writing you because the Youth Services Committee of the NYC Council will be holding a hearing on a bill to ban all aluminum bats in high school play (in NYC). The hearing is scheduled for next Monday, October 23, 2006.

While the bill only applies to the high school level, the bat manufacturers may be on the ropes. We feel we are **finally** poised to enact this legislation into law (more than 4 years after the first hearing on the bill).

While I apologize for the late notice, I am hopeful that you are able to lend a hand to the hearing, through live testimony or submitted written testimony. We are currently in need of scientific information that states that aluminum bats outperform wood bats. The bat manufacturers in attendance at this hearing will say aluminum bats perform just the same as wood and there is no data that proves these bats are dangerous, outperform wood or have led to injury.

We are very much aware of the study you conducted in 2002 that stated that aluminum bats produced faster batted ball speeds in part due to faster swings and greater elastic properties found in nearly all the aluminum bats. We think it would be beneficial to explain that data at the hearing.

I know I am contacting you at the last minute, but one of our lead witnesses no longer can attend and we feel we are at a disadvantage. I also know this is much to ask, but if at all possible, we would love to have you or a colleague attend the hearing or submit testimony.

Thank you for your assistance, cooperation and consideration.

If you would like to discuss in further detail, please call me at anytime at (917) 975-5541.

Regards and be well.

Steven Matteo
Chief of Staff
Office of Council Member James S. Oddo
(718) 980-1017